DATAMATION 84

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DP SALARIES: BRINGING THE BIG BUCKS HOME

ALSO

DO OA VENDORS EAT THEIR OWN COOKING?

TECHNOBANDITS

VIDEOTEX: INTO THE CRUEL WORLD

DATAMATION

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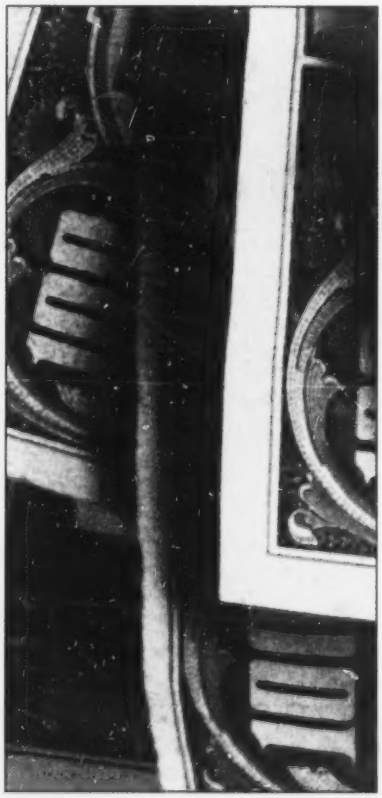

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COVER PHOTOGRAPH BY JOEL WHITE; ILLUSTRATION BY SUSAN HUNT YULE

A tighter dp job market means even fatter paychecks are coming.

THE BIG WALLET ERA

by Larry Marion

The telephones started ringing off their hooks in April. At first the calls caught data processing managers by surprise, then they became annoying, and now they are more entertaining than anything else. After years of little demand, a legion of headhunters is making cold calls to dp shops around the country, trying to find programmers, analysts, telecommunication experts, and others.

"These people are very creative with their b.s. stories," relates William Sumner, director of management information systems for the Bullock's chain of department stores in Southern California. "It is fun listening to them."

Here's a sampler of what Sumner and his staff have heard over the past few months:

" 'Hello, I'm doing a survey on programming opportunities for women. I want to send questionnaires to all the women programmers at your organization, and I need their names and addresses.'

"Another time, a guy called the computer room, described himself as the editor of an IBM publication, and claimed he was in big trouble because he had lost a mailing list. He said he was in fear of his job if he didn't get a list of on-line programmers.

"God bless him, somebody here gave him the list. The next day the phones rang off the hook.

"You name it, we've heard it when it comes to cons. It's funny and it's flattering," Sumner says, and goes on to repeat other tales of brazen headhunters.

In case you haven't noticed, things are heating up. The economic recovery is bringing better times to many corporations, and their dp departments are expanding. It's not an across-the-board boom just yet, but the signals of critical skills shortages are clearly there. And just as an IF statement is followed by a THEN statement, in-

PHOTOGRAPHS BY JOEL WHITE

creased demand for experienced dp personnel inflates salaries in a classic supply and demand spiral.

The big wallet era is coming, warns the New York-based vice president of management information services for an international financial services firm. "Many dp managers saw the leveling off of the steep climb in dp salaries and thought it meant the end of an era," he says. "That was a pause, not the beginning of a new trend." Adds Daniel Roberts, manager of the management consulting department at the accounting firm of Deloitte, Haskins & Sells, Los Angeles, "Companies are trying to maintain control, not like 1977, '78, and '79, when they were adding as many as they could."

Evidence of the higher salaries, growth, and subsequent increase in turnover rates comes from the DATAMATION salary survey, which has just been completed. Earlier this year, more than 700 dp managers from across the country estimated that the average salary increase this year would be 7.8% compared to 1983, up from the 7.2% awarded in the prior year.

Managers of large shops, with annual budgets of more than $1 million, estimate that their raises will be even higher, as head counts will soar up to 20% this year and the sharp increase in demand will lead to at least a 9% turnover rate. Managers of smaller shops estimate more modest staff growth and revenue increases, but the overall trend is clear.

Double-digit raises are expected to be typical of computer centers in certain industries such as edp and financial services. Banks are also fattening the wallets of their dp employees, judging by the 9.6% raises estimated by their dp managers. The increase in consumer spending for appliances, furniture, and other household items is showing up in the 8.3% increase in dp salaries for dp personnel of the manufacturers of consumer products.

WIDE-RANGING AVERAGES

Before you run into the boss's office and demand an 8% raise, consider that these gross averages cover an especially wide range of conditions. Some industry and regional compensation, growth, and turnover rates are declining, while others are flat. Not all dp managers are stuffing pay envelopes with large quantities of extra currency these days. The uneven economic recovery—some industries and regions are doing far better than others, coupled with a mild inflation rate—means that a broad survey average blurs much of the day-to-day reality.

For example, there's bad news for

METHODOLOGY

The 1984 DATAMATION salary survey began in June with a letter sent to 5,000 dp centers in the United States, drawn at random from the magazine's list of the top official at each of the 60,000 computer sites identified from the subscription list. Enclosed with the letter was a five-page questionnaire and a small financial incentive.

Seven hundred fifteen key officials completed the questionnaires, which asked for the current annual salaries of 43 separate dp positions; most of the responses came from dp managers, though many were completed by the personnel office. In addition, the questionnaires inquired about staff growth, the average percentage salary increase, and turnover rates last year and this year.

Of the 715 respondents, most were from major population centers, including Boston, New York, Philadelphia, Detroit, Baltimore/Washington, D.C., Atlanta, Denver, Houston, Dallas, Chicago, Minneapolis/St. Paul, Cleveland, Cincinnati/Columbus, St. Louis, Seattle, Los Angeles, and San Francisco. Because of its size, the New York labor market was further divided into two segments: Manhattan and the other boroughs and suburbs.

Most of the dp shops responding to the survey had an annual dp budget of $500,000 or less, and an average head count of more than 13 individuals.

The respondents' questionnaires were also sorted by principal activity of the dp department's parent organization. The largest segment, about 30%, was made up of manufacturing organizations; followed by the miscellaneous segment, 15%; dp services, 13%; distributors, 11%; education, 7%; business services and government, 6%. Other categories included in the survey are banking, other financial services, medical/legal, and transportation and utilities.

—L.M.

JOB DESCRIPTION GUIDE

Respondents to the salary survey matched, as closely as possible, their staff categories to the following job descriptions.

Vice president: The senior executive for all corporate information systems. Responsible for long-range planning, budgeting, and operations.

Director of dp: In charge of all dp at the divisional or departmental level. Responsibilities parallel those of corporate officers, but may be at least partially guided by decisions made at corporate level.

Services coordinator/user liaison: Works for dp department and end users; represents users when operational problems occur.

For the seniority levels in each of the following categories, refer to the section on job levels below.

Systems analysis: Confers with users to define and formulate logical statements of business problems and devise procedures for solutions through use of dp systems.

Applications programming: Develops, designs, and prepares computer programs.

Systems analysis/programming: Performs the functions of both the systems analysis and applications programming positions.

Operating systems programming: Programs, maintains, and introduces modifications to systems software.

Computer operations: In charge of equipment, data entry, production control, and postprocessing, but not of systems analysis, application programming, or other development functions.

Production and I/O: Sets up and schedules jobs for processing so as to maximize and control utilization and meet turnaround requirements.

Data entry: Perform data entry and verification functions.

Office automation: Operation of word processing equipment, intelligent typewriters, terminals for text editing/word processing.

JOB LEVELS

Manager: Advanced degree and minimum five years experience or equivalent combinations. Performs personnel evaluations, budgeting, progress reporting, and project management.

Lead: Bachelor's degree or equivalent and minimum four years experience in dp with two of those years in a supervisory capacity. Performs all levels of supervision, generally as a project manager.

Senior: Bachelor's degree or equivalent and minimum three years experience including some supervision.

Intermediate: Bachelor's degree or equivalent and minimum two years experience. Requires direction on some activities.

Junior: Two to four years college and minimum six months experience or equivalent combination. Directly supervised.

FIG. 1

ANNUAL SALARY INCREASES AND TURNOVER RATES IN 1984, BY INDUSTRY

(IN PERCENT)

	AVER.	MFG. CONS.	MFG. IND.	BANK	FIN	EDP	OTHR SERV	DIST	GOVT	MED/ LEGL	TRAN UTIL	EDUC
Salary	7.8	8.3	6.7	9.6	10.9	11.3	8.9	6.9	6.2	7.9	5.7	5.5
Turnover	4.4	4.1	3.4	7.8	4.8	6.4	4.6	4.0	3.8	5.3	4.7	2.8

FIG. 2

ANNUAL SALARY INCREASES AND TURNOVER RATES IN 1984, BY REGION

(IN PERCENT)

	AVER.	BOSTON	MANHAT	NYC	PHILA	WASH/ BALTI	ATLNTA	DALLAS
Salary	7.8	9.7	10.4	7.3	7.1	7.0	7.9	7.0
Turnover	4.4	5.1	6.6	8.7	2.7	2.7	3.2	2.0

	CHICAGO	MINN	CLEVE	CINCIN/ COLUMB	DETROIT	SAN FRAN	LOS ANGELES
Salary	7.9	6.7	5.8	8.0	8.0	7.6	12.3
Turnover	5.5	0.8	2.4	4.1	3.8	5.5	3.7

dp shops that share one trait—oversight by the federal government. Paltry raises come from the utility, transportation, and education sectors—nuclear power woes, airline fare wars, and Reagan Administration cutbacks in funding for schools are but a few of the regulatory traumas taking their toll, with average dp salary increases of 5.7% for the utility and transportation sectors and 5.5% for education.

Below-average salary increases are not surprising in areas like Cleveland, still trying to recover from the recession's wounds and with loads of unemployed casualties to pick from. Minneapolis and Seattle are other areas where dpers won't have to go out and buy stronger wallets to hold their paychecks.

A consolation for dpers in industries and areas where below-average raises are expected: compared to American workers as a group, dp personnel are not going to do too badly this year.

The average wage rate increase for American workers in 1983 was 3.3% and is expected to rise to a mere 5.3% this year, according to economists at Wharton Econometric Research Associates, Philadelphia. Dp personnel are even expected to do better than the average American executive, according to a recent survey by Sibson & Co., Princeton, N.J.—the increase in base salary this year for executives is expected to run around 7%, although the profit sharing and other executive bonuses will increase their total compensation to the 11% range. Even in the rarefied air of the largest American corporations, there are indications that overall salary increases

FIG. 3

AVERAGE ANNUAL DP SALARIES BY INSTALLATION SIZE

JOB TITLE	ALL	OVER $1 MIL	UNDER $1 MIL
Vice President	47,562	67,650	44,772
Director of DP or MIS	36,264	49,158	35,155
Service Coordination/User Liaison	27,794	27,949	26,881
Manager of Systems Analysis	37,526	41,500	36,484
Senior Systems Analyst	35,671	35,100	35,456
System Analyst	26,420	28,278	26,265
Manager of Applications Programming	33,131	42,700	31,548
Lead Applications Programmer	29,756	38,143	27,728
Senior Applications Programmer	26,900	33,425	25,425
Applications Programmer	22,121	25,692	21,286
Junior Applications Programmer	16,907	19,530	16,536
Systems Analysis/Programming Manager	32,378	40,885	30,148
Lead Systems Analyst/Programmer	33,714	46,028	30,874
Senior Systems Analyst/Programmer	30,461	34,992	28,647
Systems Analyst/Programmer	25,123	28,478	23,842
Manager of Operating Sys. Programming	34,877	43,934	30,651
Senior Systems Programmer	33,947	35,102	32,800
Manager of Database Administration	29,850	55,000	26,706
Manager of Computer Operations	24,071	31,080	23,240
Shift Supervisor	20,237	20,864	20,241
Lead Computer Operator	17,416	19,314	17,091
Computer Operator	14,685	15,626	14,588
Control Clerk	13,867	14,518	13,595
Data Entry Supervisor	15,875	18,500	15,835
Data Entry Operator	13,012	12,740	13,054
Word Processing Supervisor	17,750	24,750	17,086
Word Processing Operator	14,435	17,537	14,230

FIG. 4

AVERAGE SALARY BY INDUSTRY (IN $)

TITLE	MFG ALL	MFG CON	IND	BANK	FINANC	EDP
Vice President	47,562	42,512	47,500	63,500	39,075	51,015
Director of DP/MIS	36,264	35,004	35,316	47,333	39,686	51,000
Services Coordination/User Liaison	27,794	26,750	24,833	24,360	NA	34,966
Manager	37,526	35,250	33,200	52,000	46,000	40,944
Senior Systems Analyst	35,671	29,000	32,500	32,500	39,000	42,120
Systems Analyst	26,420	27,000	27,220	30,000	32,000	28,750
Manager of Applications Programming	33,131	31,167	37,500	55,000	33,333	37,950
Lead Applications Programmer	29,756	26,375	27,750	NA	26,500	35,538
Senior Applications Programmer	26,900	26,583	26,974	44,000	22,167	32,292
Applications Programmer	22,121	19,740	22,138	23,000	20,500	23,483
Junior Applications Programmer	16,907	16,236	17,111	NA	18,833	19,667
Manager of Systems Analysis/Programming	32,378	29,667	31,194	NA	29,728	38,697
Lead Systems Analyst/Programmer	33,714	28,750	29,333	NA	25,800	40,857
Senior Systems Analyst/Programmer	30,461	28,540	27,068	NA	26,658	39,133
Systems Analyst/Programmer	25,123	25,543	23,472	22,800	23,147	30,666
Manager of Operating Sys. Programming	34,877	30,667	34,552	NA	NA	42,507
Senior Systems Programmer	33,947	31,203	38,500	NA	30,000	44,022
Manager of Computer Operations	24,071	24,366	24,138	NA	24,343	24,124
Shift Supervisor	20,237	20,600	19,625	NA	NA	17,180
Lead Computer Operator	17,416	17,766	17,118	11,000	18,043	16,734
Computer Operator	14,685	15,200	14,713	10,500	15,082	15,099
Control Clerk	13,867	14,467	12,880	NA	NA	12,491
Data Entry Supervisor	15,875	15,143	18,164	32,000	13,958	14,252
Data Entry Operator	13,012	12,994	13,676	12,167	11,220	11,820
Word Processing Supervisor	17,750	NA	17,583	30,000	18,800	21,000
Word Processing Operator	14,435	14,000	14,368	22,000	20,000	12,072

AVERAGE SALARY BY REGION (IN $)

TITLE	ALL	BOSTON	MANHAT	NYC PHILA	WASH/ BALTI	ATLNTA	DALLAS
Vice President	47,562	50,357	80,000	55,240	42,111	59,278	40,667
Director of DP/MIS	36,264	41,000	58,875	43,406	40,000	40,864	32,529
Services Coordination/User Liaison	27,794	36,000	34,500	35,933	24,500	37,500	NA
Manager of Systems Analysis	37,526	38,000	51,000	45,700	36,000	36,875	NA
Senior Systems Analyst	35,671	51,000	45,500	37,640	40,100	29,800	41,000
Systems Analyst	26,420	23,000	28,000	28,000	31,667	24,000	NA
Manager of Applications Programming	33,131	27,500	34,000	45,375	43,000	35,167	25,000
Lead Applications Programmer	29,756	20,000	49,667	37,750	34,500	21,056	NA
Senior Applications Programmer	26,900	26,333	38,000	33,200	38,000	21,200	NA
Applications Programmer	22,121	22,250	25,000	26,917	20,600	22,333	18,594
Junior Applications Programmer	16,907	17,333	24,000	18,487	NA	15,200	16,498
Manager of Systems Analysis/Programming	32,378	34,833	NA	43,833	47,600	30,750	25,000
Lead Systems Analyst/Programmer	33,714	35,000	75,000	36,300	42,333	28,000	55,000
Senior Systems Analyst/Programmer	30,461	30,000	44,500	34,460	31,864	27,400	35,000
Systems Analyst/Programmer	25,123	25,500	30,667	29,062	24,667	28,500	NA
Manager of Operating Sys. Programming	34,877	41,000	NA	55,000	44,000	32,000	NA
Senior Systems Programmer	33,947	NA	50,000	45,000	35,350	35,000	NA
Manager of Computer Operations	24,071	18,500	37,500	28,417	21,800	22,033	17,500
Shift Supervisor	20,237	18,000	NA	22,800	NA	18,500	NA
Lead Computer Operator	17,416	15,873	23,000	17,540	16,416	14,375	16,983
Computer Operator	14,685	13,806	17,675	14,769	16,700	13,827	9,710
Control Clerk	13,867	NA	14,300	15,420	NA	12,000	NA
Data Entry Supervisor	15,875	14,340	18,200	20,650	15,500	14,583	17,500
Data Entry Operator	13,012	11,520	14,267	13,452	12,868	12,240	12,333
Word Processing Supervisor	17,750	10,000	35,000	24,000	15,500	20,333	NA
Word Processing Operator	14,435	15,500	19,500	17,317	14,000	13,000	NA

NA: not available

OTHER SERV	DISTRB	GOVMT	MED/ LEGAL	TRANS/ UTILS	EDUC
51,125	50,428	32,180	55,500	46,250	43,250
39,408	34,990	34,796	38,376	30,996	28,860
40,000	27,833	24,000	19,700	NA	20,500
40,700	29,333	32,460	25,000	NA	37,967
39,200	31,545	32,257	26,000	24,000	36,700
29,500	25,500	19,684	NA	NA	21,750
44,000	25,896	29,725	23,800	NA	22,500
50,000	28,250	25,685	20,000	NA	NA
22,000	21,100	25,000	30,000	NA	19,333
16,500	20,175	22,335	22,000	21,737	17,000
16,000	14,167	16,320	12,000	NA	13,200
36,750	26,287	34,254	26,625	34,000	31,460
37,500	34,650	28,100	NA	39,000	27,583
25,000	27,000	25,188	23,650	37,000	31,000
26,375	18,457	27,149	21,268	27,800	27,113
NA	NA	25,000	NA	NA	NA
NA	29,650	30,500	NA	26,000	32,700
29,750	18,700	24,225	19,537	26,800	30,919
20,000	23,750	19,000	NA	24,000	NA
NA	17,220	21,822	15,933	16,664	16,320
14,567	14,115	15,872	12,902	12,875	15,686
16,000	13,393	15,252	14,500	NA	15,001
15,833	16,360	16,344	17,500	19,133	15,100
14,020	13,159	13,619	13,209	15,082	11,565
20,500	15,333	16,010	13,333	18,000	17,100
13,219	17,300	14,193	15,000	16,000	12,860

CHICAGO	MINN	CLEVE	CINCIN/ COLUMB	DETROIT	SAN FRAN	LOS ANGELES
41,667	60,000	36,250	37,833	49,667	42,429	58,000
36,873	33,473	34,020	30,854	33,333	43,750	46,500
30,000	NA	NA	19,440	18,500	31,000	19,000
32,760	41,000	36,000	33,500	17,000	47,520	38,060
32,959	34,750	35,833	31,250	54,000	42,667	44,667
NA	29,000	NA	23,250	13,400	32,333	32,000
31,567	42,000	NA	28,025	NA	34,750	32,750
20,000	40,000	22,000	30,000	NA	29,000	27,000
26,875	37,000	30,000	24,833	NA	28,000	35,000
19,798	26,700	19,500	37,500	15,500	21,750	20,685
18,667	21,000	18,000	19,000	12,000	16,880	18,083
32,180	33,150	31,000	34,267	24,250	35,333	NA
24,300	34,500	25,000	35,000	30,000	37,250	36,000
NA	26,952	32,000	30,500	39,000	30,070	NA
25,749	22,071	30,000	26,000	25,000	26,333	29,000
32,000	60,000	23,760	35,000	NA	26,000	33,000
27,150	38,000	NA	30,000	NA	39,000	NA
26,518	21,300	25,828	26,167	12,000	23,543	30,250
17,000	23,500	20,000	NA	NA	25,000	NA
16,281	15,300	15,850	18,167	16,931	21,929	NA
15,059	17,583	15,643	12,725	13,627	15,467	19,187
13,026	18,500	NA	12,000	NA	14,000	NA
14,500	15,300	16,000	11,000	16,167	16,478	19,970
13,233	13,133	12,584	12,586	13,960	14,072	15,928
16,000	18,000	NA	20,000	12,500	18,400	18,500
15,000	14,500	14,750	16,000	11,688	16,500	14,240

will lag behind those achieved by dp personnel this year. The Conference Board recently reported that a survey of its Fortune 1,000 members showed an average increase of 6.5% this year, and another 6.5% expected in 1985, increases significantly below the level estimated by dp managers for the DATAMATION survey.

Another silver lining on dp salary increases is that they are expected to exceed the inflation rates. Wharton economists estimate that compared to last year the consumer price index inflation gauge will run about 4% this year and on into 1985. As many dp managers focus on inflation as one of the prime determinants of merit increases, shops in areas with a plentiful supply of savvy analysts are not pressured to inflate the payroll.

In Minneapolis, for example, General Mills has a hard time finding CICS programmers and telecom experts, but in general is not suffering from wholesale personnel shortages. "We made the decision, in view of the low inflation rate, for across-the-board 5% to 6% salary increases," says James Bird, director of information services. "We've had the opportunity to select from a well qualified group when we've had openings."

In Los Angeles, Bill Sumner of Bullock's relies on local salary surveys to determine the level of merit increases for his staff of 110 programmers, operators, and support staff, and he suspects that the pressure of the demand in the Los Angeles area will be reflected in the upcoming surveys. He says he will boost the percentage increases to stay competitive. He anticipates that "the first financial manifestations of a tightening job market will be seen six months from now," and speculates that "if there's a material change in survey, it will hit the dollar line in early 1985." He thinks the evidence suggests that demand will boost merit increases.

BOTH COASTS AFFECTED

The tightening job market, and its impact on salaries, is also being felt on the other coast. "During the recession, not too many local companies were growing their staffs," notes Bradford Sweet, group director of MIS at Wang Laboratories, Lowell, Mass., outside of Boston. "Now, as the economy improves, and companies speed up their operations, turnover may increase. Data General and DEC will do some hiring, and the old-line companies in the area will pick up too." Wang did its wallet fattening a few years ago, but the demand for people may be pushing the typical salary increase above the level Wang is now paying.

The uneven economic recovery means dpers in many regions and industries won't need fatter wallets.

"In 1981 we thought we were not competitive with the market in terms of salaries, so 1981-82 salary increases went up 13%, in part due to inflation," Sweet says. "In 1982-83, they went up 9% to 10%, and 1983-84, up about 8.5%." That compares to a local average increase of about 9.7% for 1984, so Wang may find itself behind the eight ball again.

The boom and bust cycles of the economy are having quite an effect on Wall Street. Banks are reeling from the cost of nonperforming loans to third world countries. Major brokerage firms are showing losses. Yet, dpers are not involved in the bulk of the financial industry layoffs. "The brokers may be shrinking people, but not in dp," contends Warren Kornfeld, currently a dp recruiter for Management Recruiters International Inc. in Woodbury, N.Y., and formerly head of dp at National Shoes in New York. "Dp project plans are one to three year projects, and they are not affected by the market's volatility. I haven't been touched by the recession in three and a half years." Adds the MIS vp for a major financial services firm, "The brokerage industry feels itself short of talented systems programming people, and if there are layoffs in that area, dp managers are only using that as an excuse to drop weaker personnel."

No matter what the region or industry, dp managers facing the perennial question of how to divide up the extra cash report serious attempts to give higher awards to their more productive personnel. "When salary budgets decline, or increases are smaller, dp managers become more selective about who gets what," explains Edward T. Redling, president of Executive Compensation Service Inc., the Fort Lee, N.J., subsidiary of the Wyatt Co., an actuarial and consulting firm. "When salary increases decline to the 5% or 6% level, the [budget increase] pie is not that big, and managers have to do some judicious selection of who gets what. They use the size of the salary increase to differentiate and reward outstanding performance."

Herbert Woods, vice president at Wall Street brokerage firm Paine Webber, says that in the past, "merit increases have ranged from 6% to 10% annually, and usually 8%, but this year they'll be around 6%," due to the doldrums in the stock market. He'll use the traditional end-of-year bonus, however, to reward higher performance personnel.

"Six percent sometimes causes unhappiness, but we can make it up in bonuses," Woods explains. "Last year two guys were disappointed with 6%, but later we gave them big bonuses. In brokerage, bonuses can run to 12% to 15% of salary, but in 1983, it was 11%. I've given as much as 20% based on performance. I can recall last year giving some guys 5% or 6% in bonuses and others getting 16%."

Adds Richard Kislowski, vice president for information services at Denny's Inc., Los Angeles, "We will focus on greater differential on outstanding performers in the future. Nobody will see an average—some will see less, others will see three, four, or five percentage points more than an average." Sumner of Bullocks adds, "While others lean toward a cost-of-living type of raise, we place a disproportionately large amount of raise on merit. We give the most to the best."

More judicious use of the available dollars has become the hallmark of dp management these days. Even in areas where potential employees are plentiful, dp managers are developing new strategies for bringing people in the door and keeping them there. "It's a difficult time to attract people, regardless of money, because it's a technology market out there," contends Bob Regazzi, vice president of management information systems at Schering Plough, the New Jersey-based pharmaceutical company. "People are interested in working with state-of-the-art equipment."

NOTHING LIKE CASH

Benefits such as reimbursement for education, company cars, and other perks continue to be popular, as noted last year ("1983 Dp Salaries—The Key Word Is Perks," September, p. 82). But there's nothing like cash to attract people. "We do not look at prior salary history," says Woods of Paine Webber. "If we need someone and find someone with the skills, we make the offer. We've paid 20% to 25% over current salary." Any possible inequities that might develop between the newly hired bonus baby and the veteran employees are corrected with the bonus, he quickly adds.

No matter how much money a dp manager has to offer, finding additional qualified systems programmers is an almost impossible chore these days. "It's hard to get systems development personnel," relates Regazzi of Schering Plough. "Nothing has happened so far to drive us to offer packages way out of line, but they're at a premium."

John Mariana, vice president for information at Anixter Bros., a Chicago-based electrical equipment supplier, sounds disgusted as he relates his experiences trying to fill, and keep filled, key dp slots. "We have been paying higher prices than we would like to, higher than we feel they should be. We don't feel the skill level justifies the salary."

A few years ago, says New York dp recruiter Max Sabrin, the primary demand was for people with COBOL programming experience, but now CICS, IMS, and other big mainframe systems are the key need. "I can get them three appointments, like *that*," he says, snapping his fingers.

The shortage of systems programmers extends all the way up the chain of command to management. "We have worn ourselves out looking for programmers with three to five years of experience," says Sweet at Wang. "It is hard to find a true project manager who understands all facets of the process and has the necessary people skills. Many have a background in systems analysis, but they lack other background, such as people skills, the soft skills."

Another tight area where demand clearly exceeds supply is telecommunication expertise. "This is the era of telecom and databases," declares dp recruiter Kornfeld. "It had been in the fetal stage, now it is spurting." He says that a New York-based manager of telecommunication can command a salary of between $60,000 and $100,000 per year, significantly above

CARTOON BY REX F. MAY

"We have worn ourselves out looking for programmers with three to five years of experience."

the level found in the DATAMATION survey. Adds the vp of MIS at a financial services firm, "People who know both voice and data are scarcer than hen's teeth. Network designers, with voice and data experience, are essentially unobtainable."

Many dp managers, and indeed, most of corporate America, blame a lot of their telecommunication problems on the divestiture of AT&T's operating companies. "It made the mundane part of telecom effort worse," notes Kislowski of Denny's. "Before, people would just have to do some design work, and AT&T would take care of the details. Now they have to spend time patching and fixing problems that are the result of poor communications with Bell operating companies."

The West Coast MIS vp for a major DOD contractor elaborates. "The telecom environment is different than in the past," he says. "Now people are running their own telephone company within their company. These telecom managers are not used to the responsibilities. They don't have much of a management background because before it was not hard to run the function—just know the tariffs, the telephone company did all the work."

Sumner at Bullock's and Sweet at Wang both took the same approach to filling the need for telecommunication expertise—grow 'em yourself. "We had to train, develop people internally for the network control operations," relates Sweet. Sumner boasts he staffs up his operation with personnel from other departments in the stores. "A budding actress is our datacom manager right now," he says. "She came to us out of college, worked in computer operations, and had a real flair for hooking up crts. So we sent her to technical schools."

The growing popularity of database management systems has, naturally enough, led to demand for DBMS expertise. "There's a tremendous scarcity of database people," says Kornfeld, "such as IMS programmers. Since Cullinet's IDMS is being used in large shops, and is a derivative of IDS from Honeywell, the users' needs are being met with IDS experience."

Dp managers with tight cost controls report that they are offsetting the personnel shortages by buying programmer productivity aids and other tools. Sumner has more than a dozen at Bullock's, he says. Kislowski of Denny's notes, "We are extremely happy with fourth generation packages, such as Focus. We do prototyping on it and use it extensively for reports, decision support, and databases."

Others warn that these tools are no panacea for long-term demands. "The productivity growth that dp managers are getting from improved technology will at best keep the growth rate constant," a vp for MIS contends. "Otherwise, I think we are stuck with exponential growth." ◉

The 1984 DATAMATION salary survey is now for sale in report form. It contains more than 160 pages of tables showing the average salaries for 45 different dp jobs in 18 major geographic areas and is broken down by 12 industry sectors. Single copies are $100. To order, send a check to Laurie Schnepf, director of research, DATAMATION, 875 Third Ave., New York, NY 10022.

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CIRCLE 16 ON READER CARD

European dp managers face obstacles that might surprise their American colleagues.

THE CHALLENGE OF USERS AND UNIONS

by Andrew Friedman, Joan Greenbaum, and Michael Jacobs

Like their American counterparts, most European dp managers are eager to fully involve users in the design process and to give them what they need, rather than what they say they want. But here the similarity ends. The history and culture of European data processing departments have given rise to a different set of attitudes and methods. Firms doing business with European dp departments should be aware of some marked differences.

In the Sept. 1 issue ("Wanted: Renaissance People," p. 134), we reported the results of an in-depth survey of U.S. dp departments. Our research also includes extensive interviews with dp managers in England, Norway, and Sweden, which, when grouped together, shall be referred to as Europe (see "Methodology," p. 94). There were some very interesting findings. For example:

- European dp managers have less control over decision-making within their departments and their firms.
- A history of working with users is more common in European firms than in American firms.
- European managers prefer to try new methods and procedures rather than alter the organizational structure.
- Contrary to the American image about formal European education, European firms put less emphasis on college degrees for programming and systems staff.
- Programmers and analysts are heavily unionized in Europe, which gives these staff members more of a say in departmental policies.
- European dp salaries are more in line with average white-collar salaries and do not tend to climb as rapidly as American wages.

Large firms in Europe are highly unionized, and this applies to white collar as well as blue collar staff. Dp personnel, including professionals like programmers and analysts, are likely to be union members. While data on union membership rates are hard to come by, about 53% of all programmers and analysts in the firms we surveyed were trade union members. Only 13% of data processing staff in the American sample are union members, and virtually all of these are in the public sector. European unionization rates are lowest in service bureaus and manufacturing firms, where only about a quarter of the professional staff belong to a union. While this is low by European standards, it is in stark contrast to the absence of any union membership in this area in the U.S. (see Fig. 1).

The strong presence of unions clearly alters the options that management has in making organizational changes. European trade unions often resist quick departmental reorganizations as they may result in a deterioration of working conditions or status for some of their members. In a fairly common move, a Swedish firm recently set up a service bureau as a separate company to avoid union restrictions.

UNIONS NEGOTIATE FOR ALL

In most large European firms, salary levels, as well as certain hiring and firing procedures and even promotional opportunities are negotiated by unions for all white collar staff, including dp professionals. It is often difficult, therefore, for dp managers to act on raising salaries or promoting staff without upsetting the negotiated salary structure for the entire firm. At least 50% of those interviewed said their salary and promotion policies had to be approved outside the department. In a parallel survey, American managers had more of a free hand in this matter; only 25% reported that their staffing decisions had to be formally approved elsewhere.

One European manager even said that "data processing staff are sometimes in a worse position compared to other staff because dp is a small fraction of the union so wages are sometimes lower." Programmers and analysts in larger firms rarely see the special salary hops to which American dp staff have become accustomed.

Compared to their American counterparts, entry-level programmers and analysts in Europe are much less likely to have a college or university degree. Seventy-three percent of European managers hire programmers without a college degree, while only 30% of American managers in our survey would consider this option (though the educational systems are not, of course, precisely comparable). In general, a college degree, whether in computer science or any other field, is not necessarily expected. Since most large European firms train their own programmers, they are less interested in hiring staff with college credentials. At the programmer/analyst level, 65% of European managers accepted candidates without degrees, compared to 16% of American managers (see Fig. 2).

For almost 30 years, the market for experienced systems and programming staff has been very tight in Europe. The fact that most large firms train their own programmers makes the problem of labor turnover all the more serious. As in the United States, young programmers and analysts commonly start out in major firms. After two to four years, they move on to higher paying jobs in service bureaus. Firms in the computer service sector are those least likely to be unionized and most able to offer attractive salaries and promotional opportunities.

There is tremendous concern in Europe about service bureaus luring junior dp staff away from large firms just when these people are beginning to yield a return on their training costs. Data processing managers in user firms complain continually about this form of personnel raiding. The British call it poaching, and a 1980 study by the Central Computing Telecommunications Agency of the British government suggested limiting training of new staff and restricting less experienced staff to maintenance work to help minimize the damage caused by poaching.

An expanding European economy may bring back the demand for trained programmers and analysts.

In recent years, poaching has become less of a problem, mostly because the recession has reduced the demand for programmers. This respite could be short-lived, however, as an expanding European economy may bring back the demand for trained programmers and analysts.

Recently, European governments have been pushing educational institutions to provide more practical education in a range of computer-related subjects. The British government has made information technology a high priority for new appointments in all universities. It has also developed a wide range of short-term training programs through the Manpower Services Commission.

The Swedish and Norwegian governments have initiated a number of university departments to teach the new subject of "informatics." Informatics deals with the handling of information, communications, and systems analysis, rather than the mathematical focus of the traditional computer science degree. While the equivalent of informatics does not yet exist in the U.S., it can be conceived of as a liberal arts program featuring both humanities and technical subjects. As we pointed out in our earlier article on the American scene, dp managers here are eager to hire generalists to work with users. Indeed, the informatics degree might very well fit the bill in the U.S.

The tide of user involvement in dp functions has risen rapidly on both sides of the Atlantic. User-driven systems are becoming more common, as is computer literacy among end users. Both trends lead to more sophisticated users who demand more from dp departments and who have less patience with long delays in systems development or operational bottlenecks.

GETTING THE USERS INVOLVED

The European approach has been to fully emphasize user involvement in the system design process. In Sweden this has gone as far as pushing methodologies, like system sketches, that let users handle the design phase. The Norwegians have taken another tack. They choose to foster user involvement by encouraging computer literacy for users, and, in fact, have brought this about through a legal process known as the New Technology Agreements. These agreements, negotiated with most large Scandinavian firms, create a new category of union representative called the data shop steward, who is given time off to increase his or her technical skills and help other end users do the same (see "New Technology Agreements," p. 98)

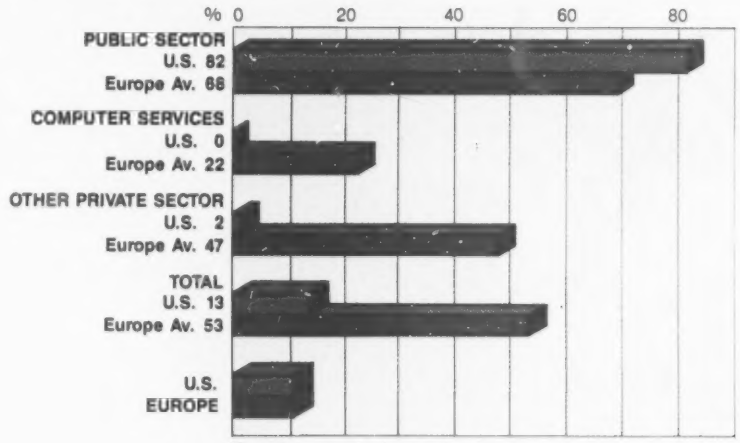
SURVEY METHODOLOGY

This international study of data processing management was funded primarily by the British Economic and Social Research Council. The findings here emerge from a sample of 199 dp managers in Great Britain, Norway, and Sweden. The results of interviews in the U.S. have been previously reported (see "Wanted: Renaissance People," Sept. 1, p. 134). Interviews are still going on in Japan.

In each country, senior level dp executives were interviewed using a standard questionnaire. The interviews, often lasting more than three hours, were conducted by nationals of each country. The research is part of a four-year study (begun in mid-1981) and is considered the only in-depth survey of dp management techniques of its kind. The researchers from the different countries have formed the International Computer Occupations Network to continue project work.

FIG. 1

TRADE UNION PARTICIPATION RATES*



*Based on sample firms included in survey
Europe equals Norway, Sweden, and England

From an American perspective, perhaps the most interesting thing about Scandinavian user interaction is the fact that this involvement includes all workers in a user department. American experience with users focuses on discussions with user management and perhaps a few members of the user department. For the Scandinavians, the term end user includes all workers who are likely to be affected by the coming system. By this definition, data entry clerks as well as secretaries need exposure to some aspects of the system design.

As American dp managers are sensitizing their staff to user needs, Scandinavians are emphasizing user education. If the American angle has been to make the dp department know more about users, the Scandinavian model has been to make users understand dp!

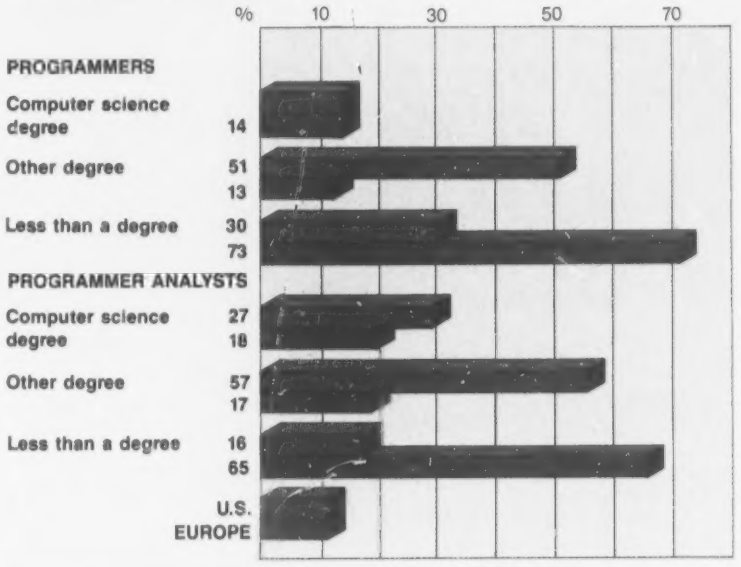
It is increasingly common in the Scandinavian countries for users to do their own feasibility studies. A Swedish manager explains their movement toward user power this way: "We use a special concept here called the system *owner*. This means that the users have the authority to start a project and that they are responsible for all aspects of it including reporting to senior management."

Data from our survey showed that 64% of European users are always involved in project development steering committees. The comparable figure for American firms is 45%. In Sweden and Norway, almost three quarters of all dp managers report that users are always included in such planning committees (see Fig. 3). Forty-two percent of the Europeans surveyed said that their users sometimes provide systems analysis support—quite a high number when compared to American firms where only 28% report user involvement at this level.

Since users are clearly involved in planning and carrying out development

FIG. 2

EXPECTED EDUCATIONAL BACKGROUND



projects, European dp managers are moving away from a preoccupation with programmer productivity. Instead, building on a history of user integration, they are emphasizing methods for productive user behavior.

The heightened awareness of user needs in Scandinavia has been stimulated by end-user demands, often through the trade unions, for greater influence over system design. Most traditional design methodologies either bring the user in too late or require users to have too high a degree of computer literacy. Several approaches for solving this problem have emerged.

The Swedes, for example, have been focusing on the notion of prototyping, which includes building a sample system with dummy data. Prototyping allows users to get what we might call a quick and dirty working model up and running at an early stage in the project development cycle. The prototype, or facsimile of the future system, lets the users experiment with data entry procedures and visualize the screens and reports.

Many dp managers are trying out new methods such as Experimental System Development (an experimental prototyping system users can manipulate well before the actual system is near completion) and system sketches to aid them in their prototyping efforts. Just over one third of Swedish dp managers said they now use such methods or plan to try them in the near future. The dp department does system sketches, often accomplished with APL, to show the user "what it will be like" as the system is being developed. Database languages and new higher-level languages also facilitate the building of these prototype systems.

DESIGN IS THE EMPHASIS

While prototyping clearly helps users have a say in the early stages of system design, it is also useful for dp managers, because it enables them to lower costs caused by frequent requests by users for changes. The hope is that users who have a prototype system to play with will be less likely to demand design changes later on when the project is well into the expensive development phase. But system sketches are not without their own headaches. One dp manager complains, "With APL's help we could present a system sketch in half a day. This makes the user who ordered the system protest against the final development taking eight months and costing a lot of money!"

Another reason for the emphasis on design methodology is the fact that off-the-shelf application packages are much less common in Europe. With their greater need to design complete systems it is understandable that Europeans focus on methods that incorporate users in the design process.

Prior to the upsurge in prototyping, Swedish firms were using a system development monitoring model called SIS-RAS (Swedish Standards Institute Standardized Computerized Methodology). Developed by the Swedish Standards Bureau and made available in 1973, it is still being used by 46% of the managers in our Swedish sample. This method stipulated 10 developmental project milestones, although in practice managers rarely used more than five checkpoints. Several firms have abandoned the model, for as one dp manager explains, "SIS-RAS takes too long and it does not allow time to keep up with changed circumstances. Users should be involved from the beginning."

The recent boom in prototyping is still too new to say what its impact will be. In the end, however, the value of data processing will have to be measured by contribution to the productivity of user departments and not simply by its ability to deliver systems quickly and cheaply.

The overwhelming majority of surveyed firms are mainframe users where COBOL is still the dominant language. As with the American sample, 70% report separating applications and systems development into different functional units. Work within these units is organized according to project teams, where it is common for team members to be involved in more than one project at a time. Programming pools, the precursor to team structures, appear to have fallen into disrepute, particularly in Scandinavia where 85% of the work is accomplished in teams. These results follow fairly closely those found in the American sample where 72% of development work is organized using a team approach.

Program specification and coding standards appear to be as relaxed in Europe as they are in the United States. When departmental specification standards are required—and in Norway and Sweden this was less than 50% of the time—the only items that managers generally require are program descriptions, I/O formats, and file layouts. Decision tables, flowcharts, and test data requirements are requested by less than one third of the managers.

European managers, like American dp managers in the survey, are not terribly interested in demanding that their programmers avoid GO TO instructions. Less than 50% of the managers in the sample say they enforce this standard. The only standard that the majority of managers on both sides of the Atlantic seem to agree on is the need to include commentary within code. Ninety percent of the managers in the United Kingdom, 75% in Scandinavia, and 69% in the U.S. feel this standard should be enforced.

INFORMAL SIGN-OFF PROCEDURE

Formal sign-off procedures at specific project milestones are also not well enforced. As with the American sample, formal sign-offs are used most when a project is turned over to the operations department. Checking feasibility with users is required by 90% of Swedish and Norwegian managers and, as we would expect, this carries more weight than formal clearance with higher-level

European dp managers are moving away from a preoccupation with programmer productivity.

NEW TECHNOLOGY AGREEMENTS

A major difference between the American and European labor relations scenes is the substantially higher level of trade union membership in Europe's private sector, especially among white-collar employees. In addition to high union membership, most European countries have powerful coordinating organizations that represent trade unionists at a national level. The Trades Union Congress in Britain, the Norwegian Federation of Trade Unions, the Swedish Trade Union Confederation, and the Swedish White-Collar Unions Federation, for example, are all important actors on their own national stages. They negotiate general agreements with employer's associations in each country and have a more important and direct influence on government policy than American unions because of intimate links with Labour or Social Democratic parties in each nation.

During the past 10 years, the introduction of new computer-based technology has been the subject of many resolutions and documents emanating from both local unions and national confederations of unions in several European countries. These materials go beyond general resolutions, calling on employers and governments to protect existing employment. They also express the trade unions' desire to be involved in the process of introducing new technology.

This activity began in 1974 when a general agreement on computer-based systems was signed between the Norwegian Federation of Trade Unions and the Norwegian Confederation of Employers. The agreement states that employees have a right to receive all relevant information concerning new systems, in an understandable form, and sufficiently early to allow employees and unions to participate in system development. The agreement also provides for the employees to elect a special shop steward—the data shop steward—who takes an active part in system development.

Shop stewards play an important role in the labor relations processes of several European countries. Their importance varies greatly between companies, but they are usually ordinary employees elected directly by trade unionists who work at the same plant or section of a plant. Once elected, most carry out union related work in their spare time or during company time. Their role can be as limited as collecting union dues or as substantial as carrying out wage negotiations where national or companywide agreements are ineffective (for example, when wider agreements may only specify minimum pay rates). The data shop steward provided for in the Norwegian agreement was to have the right to receive "proper" training, during company time, to allow participation in system development. This was the first national New Technology Agreement in Europe.

Since then, New Technology Agreements have proliferated at local and national levels in many Western European countries. In England, over 100 New Technology Agreements were signed with individual companies between 1979 and 1982. The essential elements of all these agreements are that: 1) employee representives should participate in the project development of computer-based systems, and 2) these projects be evaluated not only from technical and economic points of view, but also from a social viewpoint—that is, considering changes in organization structures, human relations, employment, health, and safety. All the agreements stress the importance of access to information concerning new systems at an early date.

On paper, these agreements appear to severely limit management's flexibility for introducing new systems, but in practice the agreements have had much less effect. The main problem from the employee's standpoint is that it is difficult for those who are not computer specialists to digest the relevant information, even if access to it is given at an early stage in project development. An even greater problem is to develop a response to proposed projects other than opposition. The unions, particularly in Scandinavia, have been anxious not to appear opposed to new technology in general.

One way to overcome this problem is to give data shop stewards substantial education in system design. The result of such training has often been that they become more sympathetic to the original projects. Some have even vacated their positions to become systems analysts. This has left many unions with a desire to develop their own educational materials. In particular, a number of Scandinavian projects during the past seven years have tried to develop new models of system design that allow employee representatives to propose more "socially acceptable" alternatives than the proposed computer-based systems, rather than opposing those systems outright.

In Sweden, the Social Democratic Party, which has strong links with the Trade Union Confederation and the White-Col-lar Unions Federation, has been in power with only minor interruptions for the past 52 years. There, worker participation in top level decision-making was specified in a series of laws passed between 1973 and 1977. These culminated in the Law on Codetermination in 1977. Out of this law, the Center for Working Life Studies was set up to provide education materials for employees participating in decision-making processes, including the system design process for new computer-based systems.

So far, it is difficult to assess the impact of New Technology Agreements on the computer-based systems that have actually been introduced. But it seems likely that the involvement of end users in more than a perfunctory role has both reduced implementation problems and encouraged end-user cooperation long after the initial system implementation.

managers within the dp department.

To American managers, the presence in Europe of strong trade unions and less managerial control over staffing decisions may seem like a glaring problem. Indeed, the European history of stronger end-user involvement and relative inflexibility in altering organizational structure are departures from American dp practice. As our earlier article pointed out, when problems arise in American firms, upper management often charges in and reorganizes the department or plays musical chairs with department heads. This is less likely to happen in Europe, for a variety of reasons. The Scandinavians, for example, are particularly interested in experimenting with system design models and less enthusiastic about shuffling the organizational chart. Their problems have pushed European managers to respond to challenges with progressive solutions.

With less need to negotiate over working arrangements, American managers tend to respond to the user challenge by shuffling the organization chart to include user representatives. The relative independence of American data processing departments allows them the luxury of time to better educate their professional staff to prepare for some form of user involvement.

European dp managers, on the other hand, have traditionally confronted union organized workers within their own shops and strong users outside their departments. These users, from clerical to profes-

The recent boom in prototyping is still too new to say what its impact will be.

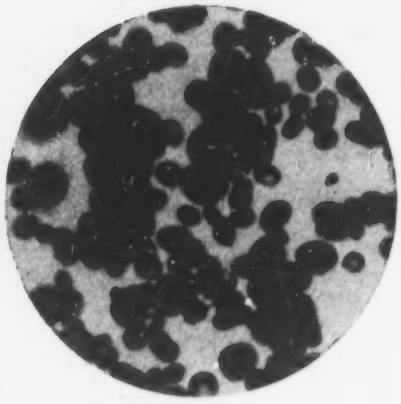


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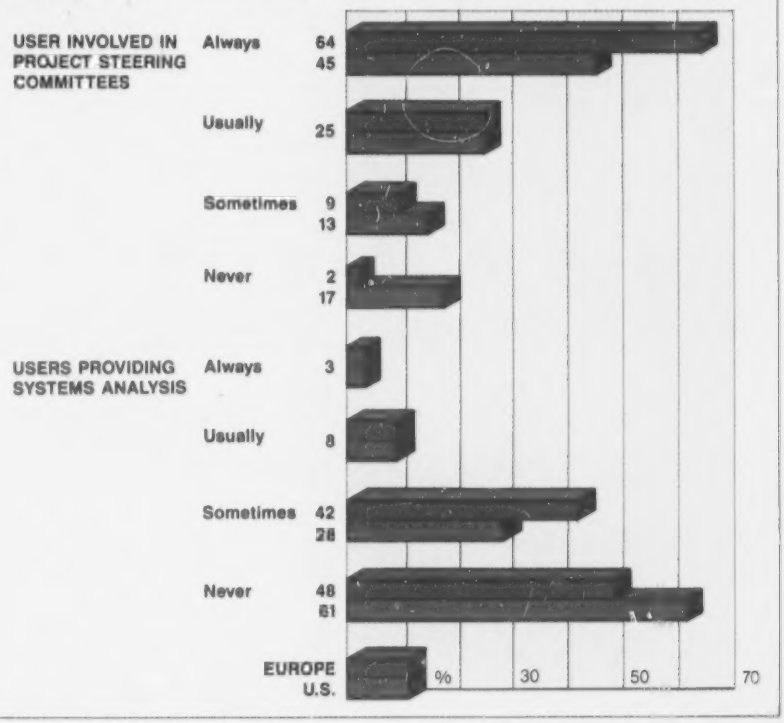
FIG. 3

USERS INVOLVEMENT IN PROJECT DEVELOPMENT



sional staff, increasingly have the backing of New Technology Agreements to help them demand participation in system development. This tradition is encouraging dp managers to focus on methods that place less emphasis on programmer productivity and more weight on the productivity of user systems.

Within the European framework, end-user clout is less significant than most trade unionists would like it to be, but is nevertheless an effective force in moving managers to try methods that integrate these workers into the system design process. Since American dp departments have more of a culture of separatism, the challenge of user integration is indeed a major one. European managers face the problem no less squarely, but have a history of user involvement on their side.

During the 1960s and '70s the independence of American data processing departments was an advantage for American companies. It allowed them to be more competitive with salaries and promotions to attract and keep specialist talent. Now American managers are facing a trade-off between their distinct status and the separate, but increasingly equal, power of sophisticated users. As the survey points out, European company culture offers some attractive alternatives. ◉

Andrew Friedman teaches economics at the University of Bristol, England. He is the principal investigator of the study reported on in this article and author of *Industry and Labour* (available in the U.S. through Humanities Press, Atlantic Highlands, N.J., 1977) as well as several articles on work organization in computing.

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Michael Jacobs, who has worked with the Labor Institute in New York, is a student with the Graduate Faculty, New School for Social Research, New York.

We would especially like to thank Carol Bates and Dominic Cornford, our project staff in Bristol, for their contributions.

So far, the information-at-your-fingertips promises of videotex have all been written in red ink.

VIDEOTEX: INTO THE CRUEL WORLD

by Efrem Sigel

"The waiting is over." That's the message on the cover of the promotional kit for Viewtron, Viewdata Corp. of America's Miami-based consumer videotex service. But for Knight-Ridder Newspapers, parent of VCA, the waiting is far from over; in fact, it has just begun. Viewtron was launched in south Florida last Oct. 31, after more than three years of experiments, putting Knight-Ridder in the hole to the tune of $17 million, with an additional $17 million investment slated for 1984. Cash continues to drain away, not only for Knight-Ridder, but for other companies in the business: AT&T, Times Mirror, Honeywell, Digital Equipment Corp., IBM—as well as many European and Japanese suppliers. A worldwide investment in videotex approaching a billion dollars is not an implausible estimate; it's hard to find two companies in the field that have earned a dollar.

The problems with consumer videotex services can be summarized in two propositions, each closely related to the other. First, almost none of the intended customers knows what videotex is and what it can do. Second, those people who are the most likely users of a computerized information service already own or are in the market for personal computers. It is extremely unlikely that they will go out and acquire a second piece of hardware in order to access videotex. As of this writing, no personal computer can access a videotex service, and no dedicated videotex terminal can perform any of the functions a pc can.

Nowhere are the promise and the ordeal of videotex better illustrated than in Viewtron. Viewtron delivers news, sports, classifieds, games and quizzes, financial information, and electronic messages, all in a frame-by-frame format featuring easy-to-use menus, high-resolution graphics, and up to 16 colors at a time. The Viewtron database stores well over 100,000 frames of information, but permits access to many millions through its gateway facility.

Gateway refers to a computer-to-computer connection that enables a subscriber who is on-line to the Viewtron computer in Miami Beach to be switched into one of seven other computer systems, operated by American Express, J.C. Penney, E.F. Hutton, Grolier, Commodity News Services, Official Airline Guide, and VideoFinancial Services (see Fig. 1). This last supplier is an electronic banking intermediary, formed by six major banks to provide services in various regions around the country. Although home banking is often mentioned as one of the prime advantages offered a videotex customer, it is off to a slow start in south Florida: as of early May, only Southeast Bank was actually offering the service, and the subscribers numbered about 200. (Elsewhere, where a pc rather than a videotex terminal is required for electronic banking, services are meeting a better response. See below.)

Viewtron's experience shows how complex it is to organize and deliver videotex. Knight-Ridder is the system operator in south Florida, responsible for creating the information, storing it in Tandem Non-Stop computers, and signing up, serving, and billing customers. However, the functioning of Viewtron also depends on:

- communications lines furnished by South ern Bell in its local area data transport (LADT) network;
- Sceptre videotex terminals manufactured by AT&T;
- information supplied by outside publishers, including *Consumer Reports,* the *New York Times,* Dow Jones, *Congressional Quarterly,* and the American Library Association;
- advertising from both local and national companies. These range from Dadeland Mall, Alpha Rent-A-Car, and Prager Travel to Merrill Lynch and Pan Am. Advertisers pay $1 per frame per week for storage, although a new package plan will give them about 50 frames for a year—including frame design and creation—for $5,000. (By comparison, when Times Mirror's service starts, its package of several hundred frames will cost advertisers $25,000; it

PHOTOGRAPH BY JAMES JOERN

Getting these systems to mesh smoothly is "like performing a high-wire trapeze act."

wants to present this as market research rather than a media buy.)

TYPICAL MONTHLY CHARGES

In order to use Viewtron in its original form, the customer had to acquire an AT&T Sceptre Videotex terminal (regularly priced at $900, but offered in south Florida for $600), pay a monthly subscription fee to Viewtron of $12, and pay $1 per hour to Southern Bell for phone service. Viewdata figured the typical monthly tab at $26.

The marketing of Viewtron involved getting the customer to purchase the terminal at one of 19 AT&T Phone Center stores in south Florida, or any of 24 other participating retailers, including Burdine's department stores and ComputerLand outlets. Despite heavy media advertising and personal selling to well-heeled individuals like preferred bank and brokerage customers, sales in the first six months were slow. At its April annual meeting, Knight-Ridder announced it had signed up 1,500 subscribers, 80% in south Florida and the rest scattered throughout the country. That number represented less than a third of its announced goal of 5,000 by the end of the first year. Since the $600 price tag on the terminal was an obvious obstacle to getting subscribers, Viewdata shifted gears in April, announcing a package plan that would lease subscribers a terminal, provide 12 hours of phone service, and unlimited access to the database for $39.95 a month—with a three-month minimum.

(Times Mirror's price will be $19.95 for service, $29.95 including a terminal; it will get off the ground in late summer in Orange County, Calif., where most phone customers have unlimited local service for a fixed monthly fee.

Another videotex provider, Keycom Electronics Publishing, Schaumburg, Ill., will offer variable pricing when it starts in Chicago this fall. After a sign-up charge of $25, customers will pay $9.95 a month for the first five hours of database access, and an additional $15 for the next 10 hours. Keycom is a joint venture of Centel (the majority owner), Rupert Murdoch's News America, and Honeywell. A Honeywell subsidiary will make the videotex terminals, to be available through Chicago area retailers at about $750 each.)

The problem of selling videotex, however, goes well beyond the pricing of the terminal and the monthly service. When Norm Morrison, executive vice president of Viewdata, was asked what will induce consumers to sign up, he answered, "We never believed there would be, and there is not a single compelling reason to buy." Among the services that can be attractive to potential customers are home banking, stock quotes, airline schedules, and news. Indeed, news—updated around the clock and available at the touch of a button—is turning out to have strong appeal.

FIG. 1

VIEWTRON'S GATEWAY SERVICES, SOUTH FLORIDA

SUPPLIER	NATURE OF SERVICE	CHARGE
American Express	Travel, vacation planning, other	Free
E.F. Hutton	Review of customers' portfolios, market position, cash, and margin balances	$17 per month
J.C. Penney	Sales of merchandise from catalog, with order confirmation, credit authorization	Free
Grolier Inc.	Academic American Encyclopedia full text: 9 million words in 28,000 articles	Free
Commodity News Services	Stock and commodity price quotes, other information on major markets	Free
Official Airline Guide	Airline flight schedules, fares between hundreds of cities	$3 per hour
VideoFinancial Services	Home banking through Southeast Bank, 10 other banks	Banks set fees; Southeast charges $3 per month minimum

SOURCE: COMPILED BY COMMUNICATIONS TRENDS INC., FROM VIEWTRON

Ask other videotex proponents what will make consumers embrace the service and you get similar answers. James Holly, executive vp of Times Mirror Videotex Services, argues that "the hook to get new subscribers on day one is home banking plus a really good news service." The importance of news, he says, is simply that "some people are very attracted by the idea of having the news before anyone else."

At IBM, William Seelinger, manager of videotex market development (and chairman of the U.S. Videotex Industry Association), also attaches considerable importance to financial services. As new financial giants reach for ways to attract customers "they'll be looking fervently for ways to outdo the other guy." One way can be to have a videotex application that involves packaging hardware and service.

WHAT HOME BANKING CAN'T DO

Of course home banking by computer has its limitations. While customers can authorize payments, transfer funds between accounts, and check their balances, they cannot make deposits or get cash as they could with an automated teller machine (ATM). Furthermore, Viewtron banking is not real time. The transactions are transferred at the end of each day to the VideoFinancial Services computer, from whence tapes will be cut for each participating bank. Getting these different computer systems to mesh smoothly is, in the words of Morrison, "like performing a high-wire trapeze act" between the twin towers of the World Trade Center. Banks could speed the process by investment in new systems and equipment, and by aggressive marketing of the new service—but that would mean significant outlays that most are reluctant to make until they see a glimmer of consumer demand. "Come see us when you have 10,000 subscribers" is what some banks have told the Viewtron people.

Whether the hook is home banking, or the ability to order merchandise from Penney's, or being first with late-breaking news (Viewtron subscribers knew that Andropov was dead even before Reagan was awakened with the news—one of the service's early news beats), it helps to have a clear idea of why customers are buying videotex and what they'll get from it. Perhaps it's unfair to expect videotex companies to define their customers very precisely today, but they have to try. Morrison says the Viewtron customers are "upscale, achievers, family people, professionals, hard drivers, self-starters," which doesn't quite explain what they want it for. He also in-

Videotex might have had a chance back in 1977, 1978, even 1979, before the pc makers got rolling.

sists that they are not computer buffs.

To test these perceptions, I phoned three out of the four subscribers whose names were given to me by Viewtron. Two of them were young boys, nine and 11 years old, whose fathers had bought Viewtron for them as gifts; both families owned home computers. The nine-year-old said he used the service every three days or so to play games like Trivia Quizzes. He pronounced the service "better" than his Atari 600XL because "you can do more things with Viewtron," like checking stocks or making purchases (though it's unlikely he does much of either). The 11-year-old said he spent two hours with the service every day, doing homework assignments from the Academic American Encyclopedia (yes, a printer—not yet available—would be a big help, he agreed), scanning sports results, and looking at news headlines. He, too, prefers the service to his computer, a Coleco Adam.

The third purchaser, Alexander Graham of Fort Lauderdale, Fla., confessed that he was "not a very good candidate" to give his opinion, having dropped the service. The idea for Graham was that Viewtron would be an educational experience for his 10-year-old daughter, but after 10 days "she had done all she could," so they took the Sceptre terminal back and got a refund. Graham said Viewtron had a number of appealing things, "but in terms of what we bought it for—to assist her in her education—it was not what we wanted." The Grahams are now considering purchasing a home computer.

These three cases are far from a systematic sample, but they do point up some lessons that those who design consumer information services often forget. Consumers never buy videotex or a VCR or a compact digital audio player in isolation, but as a choice from among hundreds of alternatives. Despite the Viewdata slogan, no consumers have been hanging around the house "waiting" for videotex to arrive on the scene. Rather, they have been indulging their desire for the latest electronic gadgets, or doing what they feel they must for their kids' education, by buying VCRs, home computers, encyclopedias, or by sending their children off to computer camp.

To establish itself as a viable service, let alone a force for sweeping social change, videotex must provide specific benefits at an attractive price. Buying a $300 home computer or a $900 encyclopedia is a one-time expense; in contrast, there are probably few parents willing to spend $40 a month indefinitely on a Viewtron subscription just because it is edifying for the youngsters. Also, because the range of services available on videotex is so broad, the temptation is to avoid zeroing in on a few, easily communicated benefits and instead to sell the service as the passkey to a new world of information at your fingertips.

FIG. 2

PERSONAL COMPUTERS AND VIDEOTEX, THE MARKETING COMPARISON, 1984

	VIDEOTEX	PERSONAL COMPUTERS
Principal suppliers	3	50
Retail outlets	40	10,000
Advertising/promotion	$5 million	$750 million

SOURCE: COMMUNICATIONS TRENDS INC.

FIG. 3

ELECTRONIC HOME BANKING SERVICES, 1984

	NUMBER OF SUBSCRIBERS	
SERVICE	JUNE 1984	DECEMBER 1984
Viewtron/VideoFinancial	250E	1,500E
Chemical Bank: Pronto	6,000	20,000P
Bank of America: HomeBanking	10,000	25,000P
All others	3,750E	13,500E
Totals	20,000E	60,000E

SOURCE: COMMUNICATIONS TRENDS INC., FROM COMPANIES
P = PROJECTED BY COMPANIES.
E = CTI ESTIMATES.

SERVICE IS NOT UNIVERSAL

Someone who knows all too well the dangers of the "information-at-your-fingertips" approach is Richard Hooper of British Telecom, who has been running the Prestel service—the world's first commercial videotex offering—for four years. According to Hooper, the Prestel developers made a number of near-disastrous blunders, of which the biggest was the erroneous assumption that they had a service with universal appeal, one that would bring "a world of information" to consumers in their homes. Prestel abandoned that delusion long ago to concentrate on a few highly targeted groups—mostly business—that could use specific information in the Prestel database to their immediate benefit. Hence, Prestel has become the means whereby travel agents learn the latest tour prices and availabilities; stockbrokers scan securities prices; farmers look up prices for crops.

After five years, Prestel now has about 45,000 subscribers, a far cry from the more than 1 million that its backers envisaged. The service has cost untold millions of pounds to develop and sell, although revenues and costs have been brought into a closer balance by simplifying the original, unwieldy network of computers, trimming the staff, and orienting the marketing to well-defined groups of customers. Along the way, some of Britain's most prestigious publishers—the *Times, The Economist, The Financial Times*—have withdrawn as information providers, unable to find a market for the uninspired repackaging of printed information in electronic form. They've been replaced, says Hooper, by smaller, entrepreneurial companies that understand the peculiarities of the demand for computerized information.

Hooper says the key to marketing videotex is to understand the difference between a trigger service and an incremental service. A trigger service is an application so vital to a given group of customers that they'll pay the cost, even if what they're getting is access to only 10 or 20 frames a day. An incremental service is one customers will use once they've acquired videotex, but will never cause them to buy it in the first place. Thus, travel agents would never acquire Prestel to look up weather reports,

but having bought it for tour prices, they might occasionally use it to get the weather.

The approach in France is still to build a mass consumer market for videotex, but with a unique twist: to offer telephone directory assistance as the principal benefit, by making available an on-line directory to consumers; and to subsidize the development of the industry by providing millions of small black-and-white terminals free to telephone customers. By the end of 1984, the French telecommunications authority will have handed out a million of these Minitels, with plans for 3 million by the end of 1986. Imposing costs of this magnitude—billions of dollars—on phone users is possible, if not entirely justifiable, when the telephone system is a national monopoly. In the U.S. it is out of the question. What is critical here is lining up support from the pc manufacturers, not support from the phone companies.

FIG. 4

THREE VIDEOTEX APPROACHES

	KNIGHT-RIDDER	TIMES MIRROR	TRINTREX
System launch	October 1983	Fall 1984	1986
Type of owner	Newspaper company	Newspaper, diversified communications company; Canadian systems company*	Computer company, broadcaster, retailer/financial services company
Terminal	AT&T Sceptre	AT&T Sceptre	Microcomputer
Most important service	News, home banking	News, home banking	Home shopping
Subscription price	$39.95/month	$29.95/month	Low
Advertiser support	40%-70%	60%-70%	80% plus
Cumulative investment**	$34 million	$15 million	$130 million

*TM PARTNER IS INFOMART CORP., TORONTO
**THROUGH FIRST YEAR OF SERVICE
SOURCE: COMMUNICATIONS TRENDS INC., FROM COMPANIES AND OTHER SOURCES. FIGURE FOR TRINTREX INVESTMENT IS CTI ESTIMATE.

SCEPTRE NOT A BARGAIN

At present, even AT&T knows that its Sceptre videotex terminal is not much of a bargain compared to a personal computer like the Apple IIc or even the much-maligned PCjr. Thomas E. Farmer, AT&T's director of consumer information products, acknowledges that Sceptre is an "immature" product but says improvements are on the way. Sceptre, which is cordless and lightweight, has no computing capacity, cannot run packaged software, has a small and hard-to-use keyboard—and faces an insurmountable marketing battle in any head-to-head comparison with the personal computer. Personal computer and software companies will spend about $750 million this year to advertise and promote their products to customers, while Knight-Ridder, Times Mirror, AT&T, and a few other brave souls might, between them, spend $5 million (see Fig. 2). In this sort of contest, you don't have to wait for the final bell to know the outcome.

As hardware, in fact, the dedicated videotex terminal bears the same relationship to the personal computer that the ill-fated consumer video disc bore to the video cassette recorder—a less versatile newcomer that inevitably must flunk the test of consumer acceptance.

The standalone videotex terminal might have had a chance back in 1977, 1978, even 1979, before the personal computer makers got rolling. Today, however, there is no chance for a videotex service that is not linked to the microcomputer business. Dow Jones and CompuServe, operating the two largest database services, have learned this lesson well: both hitched their fortunes to the microcomputer more than two years ago, and each has passed the 100,000 mark in subscribers. Dow Jones, which closed 1983 with 120,000 subscribers, figures on doubling the number in 1984.

Home banking is only one of numerous services that are taking off among personal computer owners. In contrast to the several hundred banking users on Viewtron, as of June Chemical Bank had more than 6,000 customers for its Pronto service in New York at $12 per month, while Bank of America had just over 10,000 in California at $8 (see Fig. 3). Both services can be accessed through a variety of personal computers. Both organizations see little advantage in videotex color and graphics for customers who want to log-on, make their payments, and log-off. At Chemical, senior vice president Robert Willumstad says, "We don't think the North American Presentation Level Protocol Syntax [NAPLPS] standard offers any significant advantage" over an ASCII display. At Bank of America, vice president Stephen Yotter agrees: "From a home banking standpoint, it's probably not important" to have videotex color and graphics. Neither Chemical Bank nor Bank of America says openly what must also be prominent in their thinking: if it's banking that people want, let them get it directly from the bank rather than through the intermediary of a videotex system operator.

Some proponents of videotex still look down their noses at what Dow Jones and CompuServe are doing because these services use the ASCII format for data transmission, are limited to black-and-white displays, and are not designed to be used with the home tv set. Such limitations, it's argued, rule out a broad consumer market and exclude any possibility of attracting advertisers to defray part of the cost.

The NAPLPS videotex format developed by AT&T and embodied in the Knight-Ridder and Times Mirror services, is an article of faith for videotex backers. Seelinger observes that the ASCII display format is only one cause for the limited use of terminals; hard-to-use retrieval protocols and uncomfortable keyboards must also share the blame. The videotex display and retrieval scheme, he notes, have the advantage in "usability, appeal, convenience." And videotex is tied to the home tv, which people like, not to the computer terminal, which many people fear.

Nevertheless, companies selling videotex recognize that unless they find a way to market to existing microcomputer users, they've locked themselves out of the most obvious market. After all, with an annual sales rate of 5 million units, manufacturers of home and desktop computers sell 20 times as many units every week (100,000) as Viewtron hopes to install in one year.

PCS WITH VIDEOTEX DISPLAYS

Software that enables home and desktop computers to display information in a videotex format is beginning to appear: Avcor, a Toronto company, has announced a $100 cartridge that turns the Commodore 64 into a videotex terminal; Wolfdata, in Cambridge, Mass., has a similar package for the IBM PC; and IBM has announced its own product, PC Videotex, for shipment in October. PC Videotex will cost $250 in its PC or XT versions, $220 for PCjr. To use it, the customer needs a color graphics card, color

After all, the telephone and automobile took decades to penetrate 50% of American households.

monitor or tv set, and 1200-baud modem; the price of the color graphics card and modem will usually add another $500 to $700 to the cost. Because of this added expense—which makes the videotex software more expensive than the Sceptre terminal—James Holly at Times Mirror declares that the new software "is not the whole answer, but it helps." He says Times Mirror Videotex would like to become a marketer of the software when it launches its service later this year.

For now, however, IBM's marketing of PC Videotex seems to be aiming at a business, not a consumer audience—even though Seelinger says both markets are important. The product will be sold through IBM's National Account Division and National Marketing Division sales forces as well as through IBM Product Centers. It complements IBM's Series 1/Videotex System, based on the Series 1 minicomputer, which allows companies to create in-house videotex systems for employee and customer information. Although IBM itself, Buick, Equitable, and other companies have in-house videotex systems, their overall numbers are small. Link Resources, New York, has surveyed 50 corporate MIS directors in the past year and found a lack of interest in videotex; it estimates only 25 private systems have been installed.

Another IBM videotex venture is aiming squarely at the consumer market, however. This is the joint venture with CBS and Sears that was announced in February, and which has since been named Trintrex. The Trintrex mission is specifically to offer a videotex service through home and personal computers, including any with a substantial installed base: the Apple II family, the Commodore 64, and of course the IBM PC are obvious choices, although Trintrex says it's too early for specifics. It will spend the next two years working out technical and service details before launching a business.

Aside from the enormous financial resources that the three partners bring to Trintrex, and the preeminent position that the microcomputer will occupy as a delivery medium, a few other differences are apparent between it and the Knight-Ridder and Times Mirror approaches. For one thing, Trintrex will be a national service from the outset, unlike the newspaper-sponsored offerings, which are confined to a single region. (Both Knight-Ridder and Times Mirror have agreements with other newspapers to offer licensed versions of their services, depending, of course, on consumer acceptance in the initial markets.)

For another, the Trintrex plan—always subject to revision—gives the most prominent place to at-home shopping as the motivating force for consumers, and to national advertising as the economic underpinning. This is understandable in view of Sears' position as the largest direct marketer (through its catalog sales) and the role of the CBS Television Network as the nation's largest single national advertising medium. Electronic shopping, nonetheless, has not been notably successful in any one of a number of two-way cable tv trials. Comp-U-Card—the one company engaged in it on a national scale—derives most of its revenues from membership fees rather than from the actual sale of goods and services.

The third difference, which is a corollary of the second, is that Trintrex expects most of its revenues to come from advertising and transaction fees, rather than from subscriber payments. Not that Knight-Ridder and Times Mirror downplay advertiser support; in Viewdata's projections it represents anywhere from 40% to 70% of revenues; in Times Mirror's, from 60% to 70%. Trintrex, however, is obviously aiming even higher.

Finally, the new venture will not suffer from undercapitalization. Whereas the $17 million budgeted for Viewtron this year is equivalent to nearly 5% of Knight-Ridder's after-tax cash flow from operations, combined cash flow for CBS, IBM, and Sears last year exceeded $15 billion (of which IBM accounted for 76%). The companies refuse to give details about their investments, but it would be surprising if each weren't committed to at least $50 million initially. Fig. 4 compares what is known of Trintrex to two other videotex ventures.

(It bears repeating that big investments can mean big losses as well as big payoffs. CBS dropped more than $40 million on CBS Cable. IBM's investment in Satellite Business Systems, still deeply in the red, runs into the hundreds of millions; its loss on DiscoVision Associates, never publicly disclosed, was tens of millions of dollars.)

SOME VIDEOTEX PROPHETS

Those who believe strongly in videotex often voice their faith in the language of social prophecy, not of business. IBM's Seelinger downplays the early, slow reception of Viewtron in Florida. Videotex, he says, represents "a major behavioral and cultural change in our society" and notes that "we don't adapt to changes like this so readily." After all, the telephone and automobile took decades to penetrate 50% of American households.

Albert Gillen, president of Knight-Ridder Broadcasting and of Viewdata, speaks in similar sweeping terms: "Videotex is going to have a profound effect on our social and behavioral patterns. It will change the way we buy and sell products and services in America. It will enable families to rearrange the time demands of their life-styles." At AT&T, Farmer says, "No, we're not discouraged. We know this thing requires changes in habits." The experience thus far only demonstrates the "need for staying power" on the part of industry suppliers.

This long view on the part of business is admirable, but seems incongruous. We usually look to poets, social thinkers, or visionaries to tell us what society will be like in the future. From companies we expect something more concrete. When AT&T, IBM, Knight-Ridder, and Times Mirror all talk about how wonderful a given technology will be in the future, they leave themselves open to the suspicion that they haven't got a product that anybody wants today.

In truth, the picture is more ambiguous than this. The evidence is that hundreds of thousand of business customers want, and are willing to pay for, databases that deliver market prices, stock quotes, financial reports, technical and scientific citations, and a host of other specialized data. The evidence is also that a minority—perhaps a significant minority—of people doing work or managing investments at home are willing to do the same. Moreover, there is every reason to think that when the right mix of banking services is offered at the right price, millions of people will forsake written checks for electronic payments—though this does not solve the problem of making deposits and getting cash.

To generalize from this state of affairs to a mass consumer market for computerized information and transactions in the specific videotex format, with NAPLPS color and graphics, is to make a leap of faith as yet unwarranted by facts. The videotex visionaries undoubtedly have their sources of inspiration for such leaps.

The rest of us will have to wait for more earthly persuasions. ◉

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